Claims

1. A crystalline polymorph A of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 6.4 (s), 6.15 (s), 5.69 (s), 4.59 (vs), 4.53 (s), 4.02 (s), 3.71 (vs), 3.08 (s); wherein (vs) = very strong intensity; (s) = strong intensity.

2. A crystalline polymorph A of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 1, having an X-ray powder diffraction pattern substantially as depicted in figure 1.

3. A crystalline 1-butanol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 7.5 (s), 4.87 (s), 4.48 (s), 4.05 (s), 3.76 (s); wherein (s) = strong intensity.

4. A crystalline 1-butanol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 3, having an X-ray powder diffraction pattern substantially as depicted in figure 2.

5. A crystalline 1-butanol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claims 3 to 4 containing up to 20% of 1-butanol, relative to the weight of the crystalline solvate.

6. A crystalline anisol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 7.8 (s), 6.4 (s), 4.89 (s), 4.44 (vs), 4.00 (s), 3.70 (vs), 3.46 (s); wherein (vs) = very strong intensity; (s) = strong intensity.

7. A crystalline anisol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 6, having an X-ray powder diffraction pattern substantially as depicted in figure 3.

8. A crystalline anisol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claims 6 to 7 containing up to 25% anisole.

9. A crystalline isopropanol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 10.7 (s), 7.6 (vs), 6.3 (s), 5.21 (s), 5.03 (s), 4.86 (vs), 4.50 (vs), 4.11 (s), 3.90 (s), 3.69 (s), 3.52 (s); wherein (vs) = very strong intensity; (s) = strong intensity.

10. A crystalline isopropanol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 9, having an X-ray powder diffraction pattern substantially as depicted in figure 4.

11. A crystalline isopropanol solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claims 9 to 10 containing up to 20% isopropanol.

12. A crystalline ethyl methyl ketone solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 7.3 (vs), 6.2 (s), 4.85 (s), 4.66 (s), 4.47 (vs), 4.03 (s), 3.98 (s), 3.72 (s), 3.55 (s); wherein (vs) = very strong intensity; (s) = strong intensity.

13. A crystalline ethyl methyl ketone solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 12, having an X-ray powder diffraction pattern substantially as depicted in figure 5.

14. A crystalline ethyl methyl ketone solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claims 12 to 13 containing up to 15% ethyl methyl ketone.

15. A crystalline tetrahydrofuran solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 7.6 (s), 5.97 (s), 4.98 (s), 4.84 (s), 4.11 (vs), 3.72 (vs), 3.66 (vs); wherein (vs) = very strong intensity; (s) = strong intensity.

16. A crystalline tetrahydrofuran solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 15, having an X-ray powder diffraction pattern substantially as depicted in figure 6.

17. A crystalline tetrahydrofuran solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claims 15 to 16 containing up to 25% tetrahydrofuran.

18. A crystalline 1,4-dioxane solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone which exhibits a characteristic X-ray powder diffraction pattern with characteristic peaks expressed in d-values (Å) at 5.91 (s), 5.26 (s), 4.99 (s), 4.85 (vs), 4.08 (s); wherein (vs) = very strong intensity; (s) = strong intensity.

19. A crystalline 1,4-doxane solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone of claim 18, having an X-ray powder diffraction pattern substantially as depicted in figure 7.

20. A crystalline 1,4-doxane solvate of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claims 18 to 19 containing up to 25% of 1,4-dioxane.

21. Process for the manufacture of crystalline polymorph A of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 1 wherein a solution of Zolmitriptan in an organic solvent or mixture of organic solvents is cooled, provided that the solution does not contain 1-butanol, anisole, 2-propanol, ethyl methyl ketone, tetrahydrofuran, 1,4-dioxane, ethyl acetate.

22. Process of claim 21, wherein an organic solvent is selected from C_1-C_4alkanols, , sulfoxides, and/or amides, or mixtures of C_1-C_4alkanols with water.

23. Process of claim 21, wherein the solution additionally contains a non-solvent selected from alkanes and ethers.

24. Process according to claim 21 in which the solution is cooled from a temperature of about 20° to 100°C down to about –20°C to 10°C.

25. Process for the manufacture of crystalline polymorph A of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 1 wherein crystalline Zolmitriptan is suspended, or amorphous Zolmitriptan is dispersed, in an organic solvent, provided that the solvent does not contain 1-butanol, anisole, ethyl methyl ketone, tetrahydrofuran, 1,4-dioxane.

26. Process of claim 25, wherein the organic solvent is an alcohol or an acetate.

27. Process for the manufacture of crystalline polymorph B of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 3, by cooling, or solvent evaporation, of a solution of Zolmitriptan in 1-butanol or in a solvent containing 1-butanol, provided that the solvent does not contain anisole, ethyl methyl ketone, 2-propanol, tetrahydrofuran, 1,4-dioxane, ethyl acetate.

28. Process for the manufacture of crystalline polymorph C of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 6, wherein a suspension of Zolmitriptan is stirred in anisole.

29. Process for the manufacture of crystalline polymorph D of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 9, wherein a solution of Zolmitriptan in 2-propanol is cooled and/or the 2-propanol is evaporated.

30. Process for the manufacture of crystalline polymorph E of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 12, wherein a dispersion of Zolmitriptan is stirred in ethyl methyl ketone, or wherein a solution of Zolmitriptan in ethyl methyl ketone or in a solvent containing ethyl methyl ketone, provided that the solvent does not 1-butanol, contain anisole, 2-propanol, tetrahydrofuran, 1,4-dioxane, ethyl acetate, is subjected to cooling and/or solvent evaporation.

31. Process for the manufacture of crystalline polymorph F of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 15, wherein a solution of Zolmitriptan in tetrahydrofuran is cooled and/or the tetrahydrofuran is evaporated.

32. Process for the manufacture of crystalline polymorph G of (S)-4-[[3-[2-(dimethylamino)ethyl]-1H-indol-5-yl]methyl]-2-oxazolidinone according to claim 18, wherein Zolmitriptan is suspended in 1,4-dioxane, or wherein a solution of Zolmitriptan in 1,4-dioxane or in a solvent containing 1,4-dioxane, provided that the solvent does not 1-butanol, contain anisole, 2-propanol, methyl ethyl ketone, tetrahydrofuran, ethyl acetate, is subjected to cooling and/or solvent evaporation.

33. A process according to any of the claims 21 to 32, wherein seeding is carried out with crystals of the desired crystalline polymorph.

34. A process according to any of the claims 21 to 32 in which the solution or dispersion of Zolmitriptan is prepared in situ.

35. A pharmaceutical composition comprising a crystalline polymorphic form according to any of claims 1 to 20, and a pharmaceutically acceptable carrier.

36. Zolmitriptan containing a crystalline polymorphic form according to any of claims 1 to 20.

37. Use of a pharmaceutical composition according to claim 35 for the manufacturing of a drug intended for the treatment and/or prevention of migraine, or for the treatment and/or prevention of clinical conditions for which a selective antagonist of 5-$HT_{1B/1D}$- like receptors is indicated.

38. A method for the treatment and/or prevention of clinical conditions for which a selective antagonist of 5-$HT_{1B/1D}$- like receptors is indicated, comprising administering to a patient in need of such treatment an effective amount of the pharmaceutical composition according to claim 35.